What is claimed is:

1. A method for allocating bits to encode each frame of an image sequence, each of said frame having at least one object, said method comprising the steps of:

(a) determining a target frame bit rate for the frame; and

(b) allocating said target frame bit rate among the at least one object.

2. The method of claim 1, wherein said allocating step (b) comprises the step of allocating said target frame bit rate in accordance with a target object bit rate for the at least one object.

3. The method of claim 2, wherein said target object bit rate for the at least one object is selected in accordance with a mean absolute differences (Mad) of said object.

4) The method of claim 3, wherein said target object bit rate is determined in accordance with:

$$V_i = K_i \times T_{frame} \quad \text{and} \quad K_i = \frac{(Mad_i)^2}{\sum_{k=i}^{n}(Mad_k)^2}$$

where Mad_i is the mean absolute difference (Mad) of an object i, n is a number of said objects in the frame, and V_i is said target object bit rate for object i.

5. The method of claim 2, wherein said target object bit rate is adjusted in accordance with a measure of a buffer fullness.

6. The method of claim 5, wherein said target object bit rate is adjusted in accordance with:

$$if\,(buffer\_fullness + V_i \rangle margin) \text{ then}$$
$$V_i = Max(R_s / 30 / number\_of\_objects,\ margin - buffer\_fullness)$$

where "margin" is defined as:

$$margin = ceil((1.0 - SAFETY\_MARGIN) \times buffer\_fullness)$$

where buffer_fullness is a current buffer fullness of a buffer, where SAFTETY_MARGIN is a constant, where R_s is a bit rate, and where number_of_objects is a number of objects in the input image.

7. The method of claim 5, wherein said target object bit rate is adjusted in accordance with:

$if\ (buffer\_fullness - B_{pp} + V_i \leq SAFETY\_MARGIN \times buffer\_size)$ then
$V_i = B_{pp} - V_i - buffer\_fullness + SAFETY\_MARGIN \times buffer\_size$

where "margin" is defined as $margin = ceil((1.0 - SAFETY\_MARGIN) \times buffer\_fullness)$, where buffer_fullness is a current buffer fullness of a buffer, where SAFTETY_MARGIN is a constant, where buffer_size is a size of said buffer and B_{pp} is a channel output rate.

8. The method of claim 1, wherein said target frame bit rate, T_{frame}, is derived in accordance with:

$$T_{frame} = \frac{R}{Nf} \times (1 - past\_percent) + T_{previous\,frame} \times past\_percent$$

where R is a remaining number of bits for the image sequence, Nf is a number of remaining frames in the image sequence, $T_{previous\ frame}$ is a number of bits used for encoding a previous frame, and past_percent is a constant.

9. The method of claim 2, wherein said target object bit rate is allocated to code a syntax information, a motion information, and a shape information of the object.

10. The method of claim 9, wherein said bit allocation to said shape information of an object is adjusted.

11. The method of claim 2, further comprising the step of:
(c) generating a quantizer scale for said at least one object in accordance with said target object bit rate.

12. The method of claim 11, further comprising the step of:
(d) encoding said at least one object with said quantizer scale.

13. Apparatus for encoding each frame of an image sequence, said frame having at least one object, said apparatus comprising:

a motion compensator for generating a predicted image of a current frame;

a transform module for applying a transformation to a difference signal between the current frame and said predicted image, where said transformation produces a plurality of coefficients;

a quantizer for quantizing said plurality of coefficients with at least one quantizer scale; and

a controller for selectively adjusting said at least one quantizer scale for a current frame in response to a target object bit rate for the at least one object.

14. The apparatus of claim 13, wherein said target object bit rate for the at least one object is selected in accordance with a mean absolute differences (Mad) of said object.

15. The apparatus of claim 14, wherein said target object bit rate for each of a plurality of objects is selected in accordance with:

$$V_i = K_i \times T_{frame} \quad \text{and} \quad K_i = \frac{(Mad_i)^2}{\sum_{k=i}^{n} (Mad_k)^2}$$

where Mad_i is a mean absolute difference (Mad) of an object i, n is a number of said objects in the frame, and V_i is said target object bit rate for object i.

16. The apparatus of claim 15, wherein said target object bit rate is adjusted in accordance with a measure of a buffer fullness.

17. The apparatus of claim 16, wherein said target object bit rate is adjusted in accordance with:

$$if\ (buffer\_fullness + V_i \rangle margin)\ \text{then}$$
$$V_i = Max(R_s / 30 / number\_of\_objects,\ margin - buffer\_fullness)$$

where "margin" is defined as:

$$margin = ceil((1.0 - SAFETY\_MARGIN) \times buffer\_fullness)$$

where buffer_fullness is a current buffer fullness of a buffer, where SAFTETY_MARGIN is a constant, where R_s is a bit rate, and where number_of_objects is a number of objects in the image.

18. The apparatus of claim 16, wherein said target object bit rate is adjusted in accordance with:

$$if\ (buffer\_fullness - B_{pp} + V_i \leq SAFETY\_MARGIN \times buffer\_size)\ \text{then}$$
$$V_i = B_{pp} - V_i - buffer\_fullness + SAFETY\_MARGIN \times buffer\_size$$

where "margin" is defined as: $margin = ceil((1.0 - SAFETY\_MARGIN) \times buffer\_fullness)$, where buffer_fullness is a current buffer fullness of a buffer, where SAFTETY_MARGIN is a constant, where buffer_size is a size of said buffer and B_{pp} is a channel output rate.

19. The apparatus of claim 13, wherein said target object bit rate is derived from a target frame bit rate.

20. The apparatus of claim 19, wherein said target frame bit rate, T_{frame}, is derived in accordance with:

$$T_{frame} = \frac{R}{Nf} \times (1 - past\_percent) + T_{previous\,frame} \times past\_percent$$

where R is a ~~remaining~~ number of bits for a sequence of frames, Nf is a number of remaining frames in the sequence, $T_{previous\ frame}$ is a number of bits used for encoding a previous frame, and past_percent is a constant.

21. ~~A~~ computer-readable medium having stored thereon a plurality of instructions, the plurality of instructions including instructions which, when executed by a processor, cause the processor to perform the steps of:

(a) determining a target frame bit rate for the frame; and

(b) allocating said target frame bit rate among the at least one object.

Sub. C1

~~ADD A2~~